

What is claimed is:

- 1 A communications system comprising:
 - a server;
 - 5 a client terminal; and
 - a communications network which interconnects said server and said client terminal;
 - 10 said client terminal including means connected to said server, said means establishing communications with said server;
 - 15 said server including:
 - a memory for storing information about disconnection condition regarding disconnection;
 - decision means for monitoring a connection state between said client terminal and said server and deciding whether or not said connection corresponds to said disconnection condition; and
 - 20 disconnection means for disconnecting said client terminal when it is decided that said connection corresponds to said disconnection condition.
- 25 2 The communications system defined in Claim any one of Claim 1, wherein said disconnection means comprises means for disconnecting a client terminal logged in at an earliest time when two or more client terminals have the

same disconnection condition.

3 A communications system comprising:

a server;

5 a client terminal; and

a communications network which interconnects said server and said client terminal;

10 said client terminal including means for transmitting a user identifier to issue a log-in request to said server;

said server including:

means for logging in to said client terminal in response to a log-in request from said client terminal;

15 a memory for storing disconnection condition regarding disconnection in conjunction with said user identifier;

retrieval means for retrieving said stored disconnection condition based on a user identifier transmitted from said client terminal; and

20 disconnection means for monitoring a connection state between said client terminal and said server and disconnecting said client terminal when said connection corresponds to said disconnection condition.

4 The communications system defined in Claim 2, wherein

25 said disconnection means further comprising:

decision means for monitoring a connection state between said client terminal and said server and deciding whether or not said connection corresponds to said disconnection condition; and

5 disconnection means for disconnecting said client terminal when said connection corresponds to said disconnection condition.

10 5 The communications system defined in Claim 3, wherein said memory stores a time period between logging-in and disconnection by a service user, in conjunction with a user identifier; and wherein said disconnection means comprises means for performing disconnection when a time period elapsed from a log-in operation to said server from said client terminal exceeds a time period stored in said memory.

20 6 The communications system defined in Claim 3, wherein said memory stores a non-communication time period for which data is not transmitted or received in conjunction with a user identifier; and wherein said disconnection means comprises means for performing disconnection when a non-communication time period of a client terminal exceeds said non-communication time period stored in said memory.

7 The communications system defined in Claim 6, wherein
said server is connected to an application server which
stores an application supplied to a client terminal; and
wherein said non-communication time period is a time
5 period for which a packet is not communicated between a
client terminal and an application server; and wherein
said disconnection means comprises means for monitoring an
arrival time of a packet being a group of the same
transmission destination address and the same reception
destination address and performing disconnection when a
10 time period elapsed from said arrival time exceeds a non-
communication time period stored in said memory.

8 The communications system defined in Claim 3, wherein
15 said memory stores an allowable simultaneous jointer count
which can be simultaneously connected to an access point
or server, in conjunction with a user identifier; and
wherein said disconnection means comprises means for
performing disconnection when the number of jointers
20 connected to an access point or server exceeds the
allowable simultaneous jointer count stored in said memory.

9 The communications system defined in Claim 3, wherein
said memory stores an allowable traffic allowable in a
25 predetermined period of time, in conjunction with a user

identifier; and wherein said disconnection means comprises means for performing disconnection when said traffic exceeds an allowable traffic stored in said memory.

5 10 The communications system defined in Claim 3, wherein
said memory stores a specific volume of data selected from
the group of a transmission packet size, a reception
packet size, a transmission packet count, and a reception
packet count, in conjunction with a user identifier; and
wherein said disconnection means comprises means for
performing disconnection when a data volume of a packet
being a group of the same transmission/reception
destination address exceeds said specific volume.

10 11 The communications system defined in Claim 3, wherein
said server is connected to an application server which
stores an application supplied from a client terminal; and
wherein said memory stores an address of said application
server and a timeout time, in conjunction with a service
identifier; and wherein said disconnection means comprises
means for monitoring an arrival time of a packet stored in
said memory, said packet being a group of an address and a
service identifier, and performing disconnection
immediately before elapsing a timeout time from said
arrival time, said timeout time being stored in said

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memory in conjunction with a service identifier, said
memory belonging to a group of a matching address and a
matching service identifier and with the timing a packet
matching a group of an address and a service identifier is
not received from an opposite party.

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12 The communications system defined in Claim 3, wherein
said disconnection means comprises means for disconnecting
a client terminal logged in at an earliest time when two
or more client terminals have the same disconnection
condition.

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13 The communications system defined in Claim 3, wherein
said memory stores a line disconnecting order in
conjunction with a user identifier; and wherein said
disconnection means is means for performing disconnection
in accordance with the order stored in said memory.

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14 A communications method suitable for a communications
system, said communications system comprising a server, a
client terminal; and a communications network which
interconnects said server and said client terminal, said
client terminal performing the steps of:

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connecting said client terminal to said server and
establishing communications;

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monitoring a connection state between said client terminal and said server;

deciding whether or not said connection corresponds to a disconnection condition, said disconnection condition regarding that connection stored in said memory is broken; 5 and

disconnecting said client terminal when it is decided that said connection corresponds to said disconnection condition.

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15 The communications method defined in Claim 14, wherein a client terminal logged in at an earliest time is disconnected when two or more client terminals have the same disconnection condition.

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16 A communications method suitable for a communications system, said communications system comprising a server, a client terminal, and a communications network which interconnects said server and said client terminal;

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said client terminal performing the step of:
transmitting a user identifier to issue a log-in request to said server;

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said server performing the steps of:
logging in to said client terminal in response to a log-in request from said client terminal;

retrieving, based on a user identifier transmitted from said client terminal, a disconnection condition stored in conjunction to said user identifier; and monitoring a connection state of said client terminal;

5 and

disconnecting said client terminal when said connection corresponds to said disconnection condition.

17 The communications method defined in Claim 16, wherein
10 said memory stores a time period between logging-in and disconnection by a service user, in conjunction with a user identifier; and wherein said disconnection is performed when a time period elapsed from a log-in operation to said server from said client terminal exceeds
15 a time period stored in said memory.

18 The communications method defined in Claim 16, wherein
said memory stores a non-communication time period for
which data is not transmitted or received in conjunction
20 with a user identifier; and wherein said disconnection is performed when a non-communication time period of a client terminal exceeds said non-communication time period stored in said memory.

25 19 The communications method defined in Claim 18, wherein

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5 said server is connected to an application server which stores an application supplied to a client terminal; and wherein said non-communication time period is a time period for which a packet is not communicated between a client terminal and an application server; and wherein an arrival time of a packet being a group of the same transmission destination address and the same reception destination address is monitored and said disconnection is performed when a time period elapsed from said arrival time exceeds a non-communication time period stored in said memory.

10 15 20 The communications method defined in Claim 16, wherein said memory stores an allowable simultaneous jointer count which can be simultaneously connected to an access point or server, in conjunction with a user identifier; and wherein said disconnection is performed when the number of jointers connected to an access point or server exceeds the allowable simultaneous jointer count stored in said memory.

20 25 21 The communications method defined in Claim 16, wherein said memory stores an allowable traffic allowable in a predetermined period of time, in conjunction with a user identifier; and wherein said disconnection is performed

when said traffic exceeds an allowable traffic stored in
said memory.

22 The communications method defined in Claim 16, wherein
5 said memory stores a specific volume of data selected from
the group of a transmission packet size, a reception
packet size, a transmission packet count, and a reception
packet count, in conjunction with a user identifier; and
wherein said disconnection is performed when the data
10 volume of a packet being a group of the same
transmission/reception destination address exceeds said
specific amount.

23 The communications method defined in Claim 16, wherein
15 said server is connected to an application server which
stores an application supplied from a client terminal; and
wherein said memory stores an address of said application
server and a timeout time, in conjunction with a service
identifier; said method further comprising the steps of
20 monitoring an arrival time of a packet stored in said
memory, said packet being a group of an address and a
service identifier, and performing disconnection
immediately before elapsing a timeout time from said
arrival time, said timeout time being stored in said
25 memory in conjunction with a service identifier, said

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memory belonging to a group of a matching address and a matching service identifier and with the timing a packet matching a group of an address and a service identifier is not received from an opposite party.

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24 The communications method defined in Claim 16, wherein a client terminal logged in at an earliest time is disconnected when two or more client terminals have the same disconnection condition.

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25 The communications method defined in Claim 16, wherein said memory stores a line disconnecting order in conjunction with a user identifier; and wherein said disconnection is performed in accordance with the order stored in said memory.

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26 A server, which links to a client terminal based on a disconnection condition regarding disconnection of communications established between said server and a service user, said server comprising:

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means for logging in to said client terminal in response to a log-in request from said client terminal; a memory for storing disconnection condition regarding disconnection in conjunction with said user identifier; retrieval means for retrieving said stored

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disconnection condition based on a user identifier
transmitted from said client terminal; and
disconnection means for monitoring a connection state
between said client terminal and said server and
5 disconnecting said client terminal when said connection
corresponds to said disconnection condition.

27 The server defined in Claim 26, wherein said memory
stores a time period between logging in and disconnection
by a service user, in conjunction with a user identifier;
and wherein said disconnection means comprises means for
performing disconnection when a time period elapsed from a
log-in operation to said server from said client terminal
exceeds a time period stored in said memory.

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28 The server defined in Claim 26, wherein said memory
stores a non-communication time period for which data is
not transmitted or received in conjunction with a user
identifier; and wherein said disconnection means comprises
means for performing disconnection when a non-
20 communication time period of a client terminal exceeds
said non-communication time period stored in said memory.

29 The server defined in Claim 28, wherein said server is
25 connected to an application server which stores an

application supplied to a client terminal; wherein said non-communication time period is a time period for which a packet is not communicated between a client terminal and an application server; and wherein said disconnection means comprises means for monitoring an arrival time of a packet being a group of the same transmission destination address and the same reception destination address and performing disconnection when a time period elapsed from said arrival time exceeds a non-communication time period stored in said memory.

30 The server defined in Claims 26, wherein said memory stores an allowable simultaneous jointer count which can be simultaneously connected to an access point or server, in conjunction with a user identifier; and wherein said disconnection means comprises means for performing disconnection when the number of jointers connected to an access point or server exceeds the allowable simultaneous jointer count stored in said memory.

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31 The server defined in Claim 26, wherein said memory stores an allowable traffic allowable in a predetermined period of time, in conjunction with a user identifier; and wherein said disconnection means comprises means for performing disconnection when said traffic exceeds an

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allowable traffic stored in said memory.

32 The server defined in Claims 26, wherein said memory stores a specific volume of data selected from the group of a transmission packet size, a reception packet size, a transmission packet count, and a reception packet count, in conjunction with a user identifier; and wherein said disconnection means comprises means for performing disconnection when a data volume of a packet being a group of the same transmission/reception destination address exceeds said specific volume.

33 The server defined in Claim 26, wherein said server is connected to an application server which stores an application supplied from a client terminal; and wherein said memory stores an address of said application server and a timeout time, in conjunction with a service identifier; and said disconnection means comprises means for monitoring an arrival time of a packet stored in said memory, said packet being a group of an address and a service identifier, and performing disconnection immediately before elapsing a timeout time from said arrival time, said timeout time being stored in said memory in conjunction with a service identifier, said memory belonging to a group of a matching address and a

matching service identifier and with the timing a packet matching a group of an address and a service identifier is not received from an opposite party.

5 34 The server defined in Claim 26, wherein said disconnection means comprises means for disconnecting a client terminal logged in at an earliest time when two or more client terminals have the same disconnection condition.

10 35 The server defined in Claim 26, wherein said memory stores a line disconnecting order in conjunction with a user identifier; and wherein said disconnection means is means for performing disconnection in accordance with the order stored in said memory.

15 36 A recording medium in which a process program is stored, said process program controllably linking a server to a client terminal based on a disconnection condition regarding disconnection of communications established between said server and a service user, said process program comprising the steps of:

20 logging in to said client terminal in response to a log-in request from said client terminal;

retrieving, based on a user identifier transmitted from said client terminal, a disconnection condition stored in conjunction to said user identifier;

monitoring a connection state between said client terminal and said server; and

disconnecting said client terminal when said connection corresponds to said disconnection condition.

37 The recording medium defined in Claim 36, wherein a process program is stored for performing said disconnection when a time period elapsed from the time at which said client terminal logs in to said server exceeds a time period between logging-in and disconnection, said time period being stored in conjunction with a user identifier of a service user.

38 The recording medium defined in Claim 36, wherein a process program is stored for performing said disconnection when a non-communication time period of a client terminal exceeds a non-communication time period for which data stored in conjunction with a user identifier of a service user is not transmitted or received.

25 39 The recording medium defined in Claim 38, wherein a

process program is stored for monitoring an arrival time
of a packet having a group of the same
transmission/reception destination addresses and
performing said disconnection when a non-communication
time period exceeds from said arrival time a predetermined
non-communication time period for which a packet is not
communicated between said client terminal and said
application server.

10 **40** The recording medium defined in Claim 36, wherein a
process program is stored for performing said
disconnection when the number of users connected to an
access point or server exceeds an allowable simultaneous
jointer count which is simultaneously connectable to an
access point or server, said allowable simultaneous
jointer count being stored in conjunction with a user
identifier.

20 **41** The recording medium defined in Claim 36, wherein a
process program is stored for performing said
disconnection when said traffic exceeds an allowable
traffic allowable in a predetermined time period, said
allowable traffic being stored in conjunction with a user
identifier.

42 The recording medium defined in claim 36, wherein a
process program is stored for performing said
disconnection when the data volume of a packet having a
group of the same transmission/reception destination
addresses exceeds a specific volume of data selected from
5 the group of a transmission packet size, a reception
packet size, a transmission packet count, and a reception
packet count, each being stored in conjunction with a user
identifier.

10 43 The recording medium defined in Claim 36, wherein said
server stores a process program in a system connected to
an application server which stores an application supplied
to a client terminal, said process program for monitoring
15 an arrival time of a packet being a group of an address
and a service identifier, said packet being stored as a
group of an address and a service identifier, and
performing said disconnection immediately before a stored
timeout time elapses from said arrival time and with the
20 timing a packet is not received from an opposite party.

44 The recording medium defined in Claim 36, wherein a
process program is stored for performing disconnection
from a client terminal logged in at an earliest time when
25 two or more client terminals have the same disconnection

condition.

45 The recording medium defined in Claim 36, wherein a process program is stored for performing said
5 disconnection in accordance with an order stored in conjunction with a user identifier.

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